Hapipa, Nur, 2016, Sintesis dan Karakterisasi Kalsium Fosfat Tersubstitusi Hidroksi melalui Metode Sol-Gel. Skripsi ini dibawah bimbingan Dra. Usreg Sri Handajani, M.Si. dan Ahmadi Jaya Permana, S.Si., M.Si., Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Kalsium fosfat tersubstitusi hidroksi merupakan salah satu jenis dari kalsium fosfat. Pada penelitian ini disintesis kalsium fosfat tersubstitusi hidroksi melalui metode sol-gel dari kalsium nitrat tetrahidrat, asam fosfat dan ammonium hidroksida. Dua optimasi parameter, yaitu variasi pH dan variasi temperatur kalsinasi. Sintesis kalsium fosfat tersubstitusi hidroksi divariasi pada pH 8, 9 dan 10 dengan temperatur ruang (33 ^{o}C). Padatan xerogel dianalisis menggunakan *X-Ray Diffraction* (XRD). Padatan xerogel memiliki puncak difraksi yang dominan monetit. Analisis *Differential Scanning Calorimetry-Thermogravimetric Analysis* (DSC-TGA) pada padatan xerogel menyebabkan penyusutan massa selama proses kalsinasi. Analisis XRD padatan yang dikalsinasi pada temperatur 200 ^{o}C dan 650 ^{o}C, menunjukkan puncak kalsium fosfat tersubstitusi hidroksi yang dominan dan puncak difraksi monetit yang menurun. Sintesis kalsium fosfat tersubstitusi hidroksi optimum pada pH 9 dan temperatur kalsinasi 650 ^{o}C. Analisis *Fourier Transform Infrared* (FTIR) kalsium fosfat tersubstitusi hidroksi ditandai adanya gugus hidroksi dan fosfat pada padatan tersebut.

***Kata kunci**: Kalsium fosfat tersubstitusi hidroksi, Metode sol-gel, pH, Kalsinasi.*

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ABSTRACT

Calcium phosphate substituted hydroxy is one of calcium phosphate types. In this study calcium phosphate substituted hydroxy synthesized by sol-gel method from calcium nitrate tetra hydrate, phosphate acid and ammonium hydroxide. Two parameter optimations are pH variation and calcination variation. pH variation of synthesis calcium phosphate substituted hydroxy are 8, 9 and 10 at room temperature (33 ^{o}C). Xerogel solids were analyzed using *X-Ray Diffraction* (XRD). XRD patterns of xerogel solid revealed an intense monetite peak. *Differential Scanning Calorimetry-Thermogravimetric Analysis* (DSC-TGA) of xerogel revealed weight-loss behavior during heating. XRD analysis of the calcined solid at 200 ^{o}C and 650 ^{o}C, it showed that dominant calcium phosphate substituted hydroxy peak and weak of monetite peak. pH 9 and calcination at 650 ^{o}C are optimum condition for calcium phosphate substituted hydroxy synthesize. *Fourier Transform Infrared* (FTIR) analysis of calcium phosphate substituted hydroxy solid have hydroxy group and phosphate group.

Keywords: *Calcium phosphate substituted hydroxy, Sol-gel method, pH, Calcination.*